

WHAT IS CLAIMED IS:

1 1. An isolated protein comprising a soluble CD97 α subunit, wherein said
2 soluble α subunit is selected from the group consisting of α 1, α 2, and α 3, wherein:

3 contact with said soluble α subunit increases adherence of endothelial cells;

4 α 3 has a molecular weight of about 45 kDa in non-glycosylated form, has an
5 EGF-like repeat selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, and
6 SEQ ID NO:5, and is immunologically cross-reactive to an antibody that is specifically
7 reactive to the protein of SEQ ID NO:6;

8 α 2 has a molecular weight of about 50 kDa in non-glycosylated form, has an
9 EGF-like repeat selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, and
10 SEQ ID NO:5, and is immunologically cross-reactive to an antibody that is specifically
11 reactive to the protein of SEQ ID NO:6; and,

12 α 1 has a molecular weight of about 55 kDa in non-glycosylated form, has an
13 EGF-like repeat selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, and
14 SEQ ID NO:5, and is immunologically cross-reactive to an antibody that is specifically
15 reactive to the protein of SEQ ID NO:6.

1 2. The isolated protein of claim 1, wherein said α 1 subunit further
2 comprises an EGF-like repeat selected from the group consisting of SEQ ID NO:3, and SEQ
3 ID NO:4, and

4 wherein said α 2 subunit further comprises EFG-like repeat SEQ ID NO:3.

1 3. The protein of claim 1, wherein the soluble CD97 α subunit is CD97
2 α 2.

1 4. The protein of claim 1, wherein said protein is recombinantly
2 produced.

1 5. An isolated mammalian protein comprising a soluble CD97 α subunit,
2 wherein said subunit is an extracellular protein comprising at least 10 contiguous amino acids

from the protein of SEQ ID NO:6, is increased at least five-fold upon maximal activation of a T-cell with a T-cell mitogen, and is immunologically cross-reactive to an antibody that is specifically reactive to the protein of SEQ ID NO:6.

6. An isolated nucleic acid encoding a soluble CD97 α subunit protein, wherein said CD97 α subunit protein is selected from the group consisting of α 1, α 2, and α 3, and wherein:

contact with said soluble α subunit increases adherence of endothelial cells;

α 3 has a molecular weight of about 45 kDa in non-glycosylated form, has an EGF-like repeat selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, and SEQ ID NO:5, and is immunologically cross-reactive to an antibody that is specifically reactive to the protein of SEQ ID NO:6;

α 2 has a molecular weight of about 50 kDa in non-glycosylated form, has an EGF-like repeat selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, and SEQ ID NO:5, and is immunologically cross-reactive to an antibody that is specifically reactive to the protein of SEQ ID NO:6; and,

α 1 has a molecular weight of about 55 kDa in non-glycosylated form, has an EGF-like repeat selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, and SEQ ID NO:5, and is immunologically cross-reactive to an antibody that is specifically reactive to the protein of SEQ ID NO:6.

7. The isolated nucleic acid of claim 6, wherein said CD97 α subunit selected from the group consisting of α 1 and α 2, further comprises an EGF-like repeat selected from the group consisting of SEQ ID NO:3, and SEQ ID NO:4; and

wherein said α 2 subunit further comprises EFG-like repeat SEQ ID NO:3.

8. The nucleic acid of claim 6, wherein the soluble CD97 α subunit is CD97 α 2.

1 9. The nucleic acid of claim 6 operably linked in reverse orientation to a
2 promoter.

1 10. A nucleic acid of claim 6 operably linked to a promoter.

1 11. A host cell transfected with the nucleic acid of claim 9.

1 12. A host cell transfected with the nucleic acid of claim 10.

1 13. An isolated nucleic acid, encoding a soluble CD97 α subunit, of at
2 least 25 nucleotides in length, wherein said CD97 α subunit is selected from the group
3 consisting of α 1 and α 2 wherein:

4 contact with said soluble α subunit increases adherence of endothelial cells;

5 α 2 has a molecular weight of about 50 kDa in non-glycosylated form, has an
6 EGF-like repeat selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, and
7 SEQ ID NO:5, and is immunologically cross-reactive to an antibody that is specifically
8 reactive to the protein of SEQ ID NO:6; and,

9 α 1 has a molecular weight of about 55 kDa in non-glycosylated form, has an
10 EGF-like repeat selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, and
11 SEQ ID NO:5, and is immunologically cross-reactive to an antibody that is specifically
12 reactive to the protein of SEQ ID NO:6; and,

13 wherein said nucleic acid specifically hybridizes, under stringent conditions, at
14 least two-fold above background to a CD97 nucleic acid in a human genomic library.

1 14. The nucleic acid of claim 13, wherein the soluble CD97 α subunit is
2 CD97 α 2.

1 15. An antibody composition specifically reactive, under immunologically
2 reactive conditions, to a soluble CD97 α subunit selected from the group consisting of α 1 and
3 α 2, wherein:

4 α 2 has a molecular weight of about 50 kDa in non-glycosylated form, has an
5 EGF-like repeat selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, and
6 SEQ ID NO:5, and is immunologically cross-reactive to an antibody that is specifically
7 reactive to the protein of SEQ ID NO:6; and,

8 α 1 has a molecular weight of about 55 kDa in non-glycosylated form, has an
9 EGF-like repeat selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, and
10 SEQ ID NO:5, and is immunologically cross-reactive to an antibody that is specifically
11 reactive to the protein of SEQ ID NO:6.

1 16. The antibody composition of claim 15, wherein said composition
2 comprises at least three unique antibodies.

1 17. A method for determining the degree of inflammation at a site in a
2 mammal, comprising the steps of

3 a) contacting an antibody composition to a biological sample from said
4 site, wherein said antibody composition is specifically reactive, under immunologically
5 reactive conditions, to a soluble CD97 α subunit selected from the group consisting of α 1, α 2,
6 and α 3, wherein:

7 α 3 has a molecular weight of about 45 kDa in non-glycosylated form,
8 has an EGF-like repeat selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2,
9 and SEQ ID NO:5, and is immunologically cross-reactive to an antibody that is specifically
10 reactive to the protein of SEQ ID NO:6;

11 α 2 has a molecular weight of about 50 kDa in non-glycosylated form,
12 has an EGF-like repeat selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2,
13 and SEQ ID NO:5, and is immunologically cross-reactive to an antibody that is specifically
14 reactive to the protein of SEQ ID NO:6; and,

15 α 1 has a molecular weight of about 55 kDa in non-glycosylated form,
16 has an EGF-like repeat selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2,
17 and SEQ ID NO:5, and is immunologically cross-reactive to an antibody that is specifically
18 reactive to the protein of SEQ ID NO:6;

19 b) incubating said antibody composition with said biological fluid under
20 immunologically reactive conditions conducive to formation of an specific antibody:CD97 α
21 subunit complex, wherein detection of the amount of said complex indicates the extent of
22 inflammation at said site.

1 18. The method of claim 17, wherein said biological sample is selected
2 from the group consisting of blood, synovial fluid, and cerebrospinal fluid.

1 19. A method for identifying a compound which inhibits soluble CD97 α
2 subunit expression, comprising:

3 (a) contacting, under cell culture conditions, said compound with a resting
4 T-cell and an effective amount of a T-cell mitogen, wherein said compound is present in at
5 least nanomolar concentrations; and

6 (b) assaying for changes in the expression level of said CD97 α subunit,
7 wherein said subunit is selected from the group consisting of α 1, α 2, and α 3, and wherein:
8 α 3 has a molecular weight of about 45 kDa in non-glycosylated form,
9 has an EGF-like repeat selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2,
10 and SEQ ID NO:5, and is immunologically cross-reactive to an antibody that is specifically
11 reactive to the protein of SEQ ID NO:6;

12 α 2 has a molecular weight of about 50 kDa in non-glycosylated form,
13 has an EGF-like repeat selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2,
14 and SEQ ID NO:5, and is immunologically cross-reactive to an antibody that is specifically
15 reactive to the protein of SEQ ID NO:6; and,

16 α 1 has a molecular weight of about 55 kDa in non-glycosylated form,
17 has an EGF-like repeat selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2,
18 and SEQ ID NO:5, and is immunologically cross-reactive to an antibody that is specifically
19 reactive to the protein of SEQ ID NO:6;

20 wherein a reduced level of expression of said subunit relative to a
21 negative control identifies said compound as an inhibitor.

1 20. The method of claim 19, wherein said T-cell mitogen is selected from
2 the group consisting of phytohemagglutinin, concanavalin A, phorbol 12-myristate 13-
3 acetate, and pokeweed mitogen.

1 21. The method of claim 19, wherein changes in the expression of said
2 CD97 α subunit are determined by immunoassay or nucleic acid assay.

1 22. A method for inhibiting angiogenesis associated with chronic
2 inflammation in a mammal, comprising administering a therapeutically effective amount of a
3 CD97 antagonist selected from the group consisting of CD97 subunit antisense nucleic acid,
4 CD97 subunit α decoy protein, and anti-CD97 α subunit antibody, wherein said CD97-
5 subunit is selected from the group consisting of α 1, α 2, α 3, and β wherein:

6 α 3 has a molecular weight of about 45 kDa in non-glycosylated form, has an
7 EGF-like repeat selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, and
8 SEQ ID NO:5, and is immunologically cross-reactive to an antibody that is specifically
9 reactive to the protein of SEQ ID NO:6;

10 α 2 has a molecular weight of about 50 kDa in non-glycosylated form, has an
11 EGF-like repeat selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, and
12 SEQ ID NO:5, and is immunologically cross-reactive to an antibody that is specifically
13 reactive to the protein of SEQ ID NO:6;

14 α 1 has a molecular weight of about 55 kDa in non-glycosylated form, has an
15 EGF-like repeat selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, and
16 SEQ ID NO:5, and is immunologically cross-reactive to an antibody that is specifically
17 reactive to the protein of SEQ ID NO:6; and

18 β has a molecular weight of about 28 kDa as an unglycosylated protein and is
19 immunologically cross-reactive to an antibody that is specifically reactive to the protein of
20 SEQ ID NO:6.

1 23. The method of claim 22, 24, wherein the therapeutically effective
2 amount is administered topically or parenterally.

1 24. A method for inhibiting atherosclerosis in a mammal, comprising
2 administering a therapeutically effective amount of a CD97 antagonist selected from the
3 group consisting of CD97 subunit antisense nucleic acid, CD97 subunit α decoy protein, and
4 anti-CD97 α subunit antibody, wherein said CD97-subunit is selected from the group
5 consisting of α 1, α 2, α 3, and β wherein:

6 α 3 has a molecular weight of about 45 kDa in non-glycosylated form, has an
7 EGF-like repeat selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, and
8 SEQ ID NO:5, and is immunologically cross-reactive to an antibody that is specifically
9 reactive to the protein of SEQ ID NO:6;

10 α 2 has a molecular weight of about 50 kDa in non-glycosylated form, has an
11 EGF-like repeat selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, and
12 SEQ ID NO:5, and is immunologically cross-reactive to an antibody that is specifically
13 reactive to the protein of SEQ ID NO:6;

14 α 1 has a molecular weight of about 55 kDa in non-glycosylated form, has an
15 EGF-like repeat selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, and
16 SEQ ID NO:5, and is immunologically cross-reactive to an antibody that is specifically
17 reactive to the protein of SEQ ID NO:6; and

18 β has a molecular weight of about 28 kDa as an unglycosylated protein and is
19 immunologically cross-reactive to an antibody that is specifically reactive to the protein of
20 SEQ ID NO:6.

1 25. A method of treating or inhibiting CD97 associated inflammation in a
2 mammal, comprising administering a therapeutically effective amount of a CD97 antagonist
3 selected from the group consisting of CD97 subunit antisense nucleic acid, CD97 subunit α
4 decoy protein, and anti-CD97 subunit antibody, and wherein said CD97-subunit is selected
5 from the group consisting of α 1, α 2, and α 3, wherein:

6 α 3 has a molecular weight of about 45 kDa in non-glycosylated form, has an
7 EGF-like repeat selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, and
8 SEQ ID NO:5, and is immunologically cross-reactive to an antibody that is specifically
9 reactive to the protein of SEQ ID NO:6;

10 α 2 has a molecular weight of about 50 kDa in non-glycosylated form, has an
11 EGF-like repeat selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, and
12 SEQ ID NO:5, and is immunologically cross-reactive to an antibody that is specifically
13 reactive to the protein of SEQ ID NO:6; and,

14 α 1 has a molecular weight of about 55 kDa in non-glycosylated form, has an
15 EGF-like repeat selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, and
16 SEQ ID NO:5, and is immunologically cross-reactive to an antibody that is specifically
17 reactive to the protein of SEQ ID NO:6.

10059506 012902